1.0 Purpose and Need

Since May 1960, the Minnesota Department of Transportation (MnDOT) has operated a segment of US Highway 53 (US 53) on an easement granted by United States Steel Corporation (US Steel, now RGGS Land and Minerals Co., or RGGS). This roughly one and a half mile segment of US 53, from approximately 2nd Avenue West to Cuyuna Drive in Virginia, Minnesota (see Figure 1.0-1), is subject to iron ore mining rights held by RGGS and Cliffs Natural Resources (United Taconite Division, herein referred to as UTAC), the mine's owner and operator, respectively. At its east end, the US 53 easement segment connects with Minnesota Trunk Highway 135 (MN 135), which provides the inter-regional link toward Gilbert and other communities to the east. Under the 1960 easement terms, MnDOT agreed to relocate US 53 upon notice from the mine owner/operator.

On May 5, 2010, United Taconite (UTAC)[1] and RGGS provided notice to MnDOT that the 1960 easement rights would be terminated (see copies of the 1960 easement and the letter of termination in Appendix A). Under the original easement terms, MnDOT must vacate the US 53 easement within three years of notification. In response to the notice, MnDOT requested a seven-year timeframe for relocation of US 53. The two parties have signed an agreement to modify the easement vacation date to May 2017.

MnDOT is conducting this project process to make decisions on how to best address the pending termination of easement rights. Accordingly, the approximate project termini are on US 53 at 2nd Avenue West and Cuyuna Drive.

1.1 Project Purpose

The purpose of the US 53 project is to address the termination of the 1960 easement agreement that affects the current highway location in order to continue to provide a transportation facility that will safely maintain adequate roadway capacity and mobility as well as local, regional, and inter-regional connectivity.

1.2 Project Setting

US 53 is a primary north-south route in the upper Midwest. The US 53 "Falls-to-Falls Corridor" between International Falls, Minnesota, and Chippewa Falls, Wisconsin, is designated as a High Priority Corridor on the National Highway System. Within Minnesota, this corridor links Virginia, a secondary regional trade center, to Duluth, a primary regional trade center about 60 miles to the south. International Falls, a shopping trade center and a gateway to Canada, is located on US 53 about 100 miles north of Virginia.

The project is located within the Mesabi Range of the Iron Range[2] in northeastern Minnesota and is set in the middle of the Quad Cities area, which includes the cities of Eveleth, Gilbert, Mountain Iron, and Virginia (see Figure 1.0-1). The land use characteristics within the project area consist of large mining operations, forested land, wetlands, open space, residential areas, and commercial developments. The area is widely known for iron ore mining, and the existing US 53 corridor easement crosses UTAC's open-pit mine, which extends a distance of about five miles between Virginia and Eveleth.

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[1] United Taconite (UTAC) is a division of Cliffs Natural Resources, Inc. UTAC leases the property from the land and mineral owner, RGGS Land and Minerals Co. For brevity, most references in this document will refer simply to "UTAC."

[2] The Iron Range is an informal and unofficially designated region that makes up the northeastern section of Minnesota. It is a region with multiple distinct bands of iron ore. From a geological perspective, the Iron Range in Minnesota includes these four major iron deposits:

- The Mesabi Range, the largest of the four, is largely within Itasca and St. Louis Counties
- The Vermilion Range, northeast of the Mesabi, is in St. Louis and Lake Counties
- The Gunflint Range is in the extreme northern portion of Cook County and extends into Canada
- The Cuyuna Range, southwest of the Mesabi, is largely within Crow Wing County

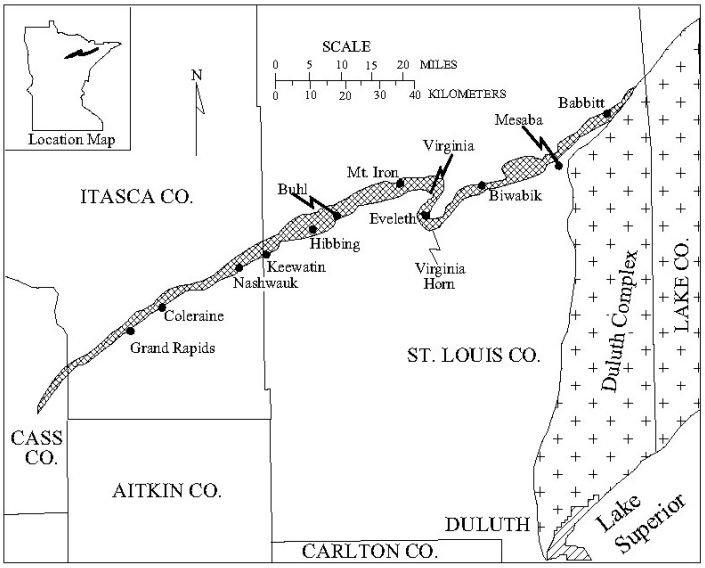
The large size of the Mesabi Range leads many Minnesotans to equate it directly with the Iron Range, in exclusion of the other, smaller ranges.

Along with US 53, US 169, MN 37, and MN 135 are the arterial routes providing connectivity within the Quad Cities, to the broader portions of northeastern Minnesota, and beyond.

The Mesabi Range is often thought of as the iron ore formation that has been a foundation of the area's economy since the late 1800s. The most important iron ore deposits are concentrated along a linear geologic formation about 120 miles long and up to three miles wide (Figure 1.2-1). This iron-rich sedimentary rock formation is known geologically as the Biwabik Iron Formation. The Biwabik Iron Formation has a distinct five mile wide meander, or U-shape, near its middle known as the Virginia Horn, which is in the US 53 project area. The central portion of the Biwabik Iron Formation, including the Virginia Horn, has the thickest deposits of iron ore found along the entire formation.[3] Figure 1.2-2 shows the Virginia Horn in relation to the project alternatives, as discussed in Chapter 2: Alternatives.

In addition to the large presence of iron mining, the project area includes emphasis on outdoor tourism, services, and healthcare, particularly in and near Virginia, the largest of the Quad Cities. The surrounding area features scenic topography, reflecting the region's geology; woodlands; recreational lakes, both natural and previously mined iron ore pits; and many trails for hiking, bicycling, and motorized recreation. In general, the Biwabik Iron Formation forms naturally high and dry ground in the region, with lower-lying wet soils and wetlands more prevalent in the areas that surround it, including the area southwest of Virginia and west of Eveleth. As iron mining proceeded over the decades, depleted mine pits created new lakes, often with steep shores formed by the pit edges.

Figure 1.2-1. Biwabik Iron Formation



Source: *Geology and Stratigraphy of the Central Mesabi Iron Range*; available at http://www.d.umn.edu/prc/workshops/Guidebooks/BIF%20Guidebook.2.pdf

1.3 Project Needs

The need for undertaking this project is derived from the following elements:

- Respond to the roadway easement terms; address the requirements set forth in agreements between the State of Minnesota and the land owner
- Provide a facility that meets regional and inter-regional system connectivity needs and inter-regional highway corridor performance targets
- Maintain local connectivity to the regional system and maintain efficiency of local connections
- Provide a facility that serves current and future capacity needs while maintaining system mobility and safety

All four elements are discussed in more detail below. Together, these needs support taking action to address the anticipated transportation system problem arising from the termination of the existing easement agreement.

[3] The Biwabik Iron Formation is about 175-300 feet thick at its extreme eastern end, as much as 730-780 feet thick in the folded central area (including the Virginia Horn near Virginia/Eveleth), and around 500 feet thick in the western Mesabi Range near Coleraine. Source: *Geology and Stratigraphy of the Central Mesabi Iron Range*; available at http://www.d.umn.edu/prc/workshops/Guidebooks/BIF%20Guidebook.2.pdf

1.3.1 Need #1: Respond to the roadway easement terms

The approximately one and a half mile segment of US 53 between 2nd Avenue West and Cuyuna Drive in Virginia operates on an easement granted to the State of Minnesota in 1960 by US Steel (RGGS Land and Minerals Co. is the current owner and successor to US Steel; UTAC is the mine operator). The May 2010 termination of the State's easement rights is the primary need for action, requiring MnDOT to address the future of US 53 at this location. Under the easement terms, MnDOT must vacate the above-noted portion of US 53. The timeframe for response to the easement compliance, formalized through written agreement between MnDOT and RGGS/UTAC, is May 2017.

1.3.2 Need #2: Provide a facility that meets regional and inter-regional system connectivity needs and inter-regional corridor performance targets

1.3.2.1 Inter-regional and Regional Connectivity

US 53 is a High Priority Corridor on the National Highway System. It links Virginia, Minnesota, a secondary regional trade center, to Duluth, a primary regional trade center about 60 miles to the south. International Falls, a shopping trade center and a gateway to Canada, is located on US 53 about 100 miles north of Virginia. The US 53 easement segment provides an important link along this and other inter-regional routes, supporting these long-distance trips.

US 53, MN 135, and US 169 are also designated constitutional routes in Minnesota's trunk highway system, meaning that any proposed route relocation must closely evaluate connectivity to and between various communities.[4] In the US 53 project area, constitutional routes are intended to provide the cities of Eveleth, Virginia, Gilbert, and Mountain Iron "…a reasonable means of communication, each with the other and other places in the state…" (Minnesota Statutes, section 161). Similarly, MN 37 between Gilbert and Eveleth is designated as a constitutional route.

1.3.2.2 Inter-regional Corridor (IRC) Performance

US 53 is also categorized in MnDOT plans as a Medium Priority Inter-regional Corridor (IRC). The focus of IRCs is on improving mobility along the corridors to facilitate connections between regional economic centers. This focus is reflected in the performance target for a Medium Priority IRC (averaging 55+ miles per hour for the entire length of the US 53 corridor).

1.3.3 Need #3: Maintain local connectivity to the regional system; maintain efficiency of local connections

1.3.3.1 Local Connections to Regional Highway System

The need to maintain highway system linkages and route continuity, even with the possible removal of the segment of US 53 through the existing easement agreement area, is a challenge. This challenge is clarified when we review the original easement location decision, which recognized:

- The need for a direct highway connection to serve many regional and local highway trips
- The need to cross future iron ore reserves and anticipate conflicts with future mining (the issue now being addressed)

The transportation effectiveness of the original US 53 route in serving both local and regional trips is further evidenced by existing and forecast traffic volumes. The easement segment carries more traffic (more than 22,000 vehicles per day) than any other segment of US 53 in the study area. While such focused heavy demand on about one and a half miles of highway is remarkable, it is not surprising given

[4] Minnesota's constitutionally dedicated routes "…may be relocated as provided by law but no relocation shall cause a deviation from the starting points or terminals nor cause any deviation from the various villages and cities through which the routes are to pass under the constitutional amendment adopted November 2, 1920." (Source: Minnesota Legislature website, Article XIV, Public Highway System, accessed April 4, 2011.)

the route's strategic location. In fact, from a highway network perspective, the US 53 easement segment is comparable to a major river crossing, as there are limited opportunities to cross through the iron formation. Now, as compliance with the easement terms necessitates a new review, travelers continue to need an efficient and effective connection for many trip purposes.

1.3.3.2 Efficient Local Connections

US 53 also provides a local connection between the communities of Virginia and Eveleth and is an important link among all of the Quad Cities (Figure 1.3-1). The easement segment of US 53 also connects the main/larger portion of Virginia to the city's Midway neighborhood on the east side of the UTAC mine. Therefore, the easement segment serves local connections both between the area's communities and within the city of Virginia itself.

Several roads intersect US 53 near the easement segment and provide important connections to the area's neighborhoods and businesses. To the north of the easement within Virginia, US 169 ties into US 53 as do several local streets, including 12th Avenue and 2nd Avenue. MN 135 connects to the easement segment of US 53 on its east, providing a direct link to/from Gilbert. To the south, in Eveleth, MN 37 and County Road (Co.) 101 tie into US 53 from the east and west, respectively.

Further south, MN 37 connects to the west side of US 53 (US 53 and MN 37 share the same segment of highway between Eveleth and the western section of MN 37).

With a combined population of about 17,100 (Table 1.3-1), the Quad Cities is a major population sub-area in the Iron Range. There is a need to preserve at least the same level of network connectivity and community access as is currently provided. The need for daily east-west connections is illustrated with about 60 to 65 percent of the area's population located west of the easement segment and 35 to 40 percent located east. In Virginia, the connectivity need includes maintaining a link to 2nd Avenue, which connects the central business district to US 53, to the Midway neighborhood and other points east via the easement segment.

Table 1.3-1. Quad Cities Populations (2010 US Census)

City	2010 Population
Virginia	8,712
Eveleth	3,718
Mountain Iron	2,869
Gilbert	1,799
TOTAL	17,098

In order to maintain or improve existing connections among the Quad Cities, including connections that currently use the US 53 easement segment as the most direct route, current travel times between local communities should be maintained or not increased substantially. Examples of community needs that depend on efficient transportation connectivity include the local economy, emergency service providers, and school transportation. Increases in travel time between communities would impair emergency response time, such as police, fire, and ambulance, which is an issue of concern that has often been noted by stakeholders in the project area. In addition to the general concerns, Essentia Health-Virginia is located on Virginia's north side (on 9th Street) and serves as the region's main trauma center and hospital. Also, the Mountain Iron/Buhl, Eveleth, and Virginia school districts rely on the US 53 easement segment to transport students throughout the school year.

1.3.4 Need #4: Provide a facility that serves current and future capacity needs while maintaining mobility and safety

US 53 must continue to safely and efficiently meet the current travel demand, and continue to do so for projected demand. Chapter 3: Transportation Analysis shows the actual 2009 traffic volumes on US 53 (the most current year for traffic count data) (see Figure 3.1-1) as well as forecasts for:

- 2017, the year when a long-term plan for US 53 should be fully implemented, based on the background/needs above
- 2037, the project's target design year (20 years after 2017)

Annual average daily traffic (AADT) volumes are shown for US 53 and intersecting roads within the study area.[5]

In 2009, traffic volumes on US 53 within the study area ranged from 12,000 vehicles per day (vpd) to more than 22,000 vpd. The highest AADTs, both current and projected, occur on the easement segment of US 53, as shown in Figure 3.1-1, where the 2009 traffic volume on US 53 was 22,400 vpd between 2nd Avenue and MN 135. This segment is expected to carry over 24,000 vpd by 2017 and over 28,600 vpd by 2037. There is a need for US 53 to convey the existing and forecast traffic demands while addressing IRC performance standards and efficient connections, as described in Needs 2 and 3 above.

1.4 Other Considerations

In addition to the project needs outlined above, other factors that should be considered in the development and evaluation of project alternatives include:

- **Potential high cost of acquiring right-of-way due to mineral rights**

  As described above, the segment of US 53 that is the subject of this project is located on an easement within land owned by a mining company. Since the project is located in an area where the Biwabik Iron Formation is located, much of the land in the project area has valuable mineral rights associated with it. Depending on the amount of mining that has already taken place on parcels, the quality of the ore deposits, and other factors, the value of the land varies. Overall, however, the value of mineral rights associated with parcels within the Biwabik Iron Formation can result in substantially higher acquisition costs compared to land outside the feasible mining areas.

  Therefore, the value of mineral rights and how they affect overall project cost is a factor that needs to be considered in developing and evaluating project alternatives.

- **Economic development**

  US 53 provides an important connection within and among the Quad Cities, including providing an important route for local and regional commerce. Potential impacts to existing businesses and to future development opportunities within the cities adjacent to US 53 have been identified by project stakeholders as an important factor to be considered in this project. Changes to methods for shipping iron ore out of the UTAC mine are not expected, as all iron ore is currently shipped out by rail.

- **Use of US 53 as a corridor for utilities**

  The existing US 53 corridor includes permits granted for a variety of public and private utilities between Virginia and Eveleth. US 53 in particular enables utility service to Virginia's Midway area. Relocation of US 53 and the continuation of UTAC mine operations could effectively sever important utility services in Virginia and to other areas of the Quad Cities. While MnDOT is not obligated to relocate utilities as part of this project, a new US 53 alignment could be used as a corridor for the continuation of some utility services.

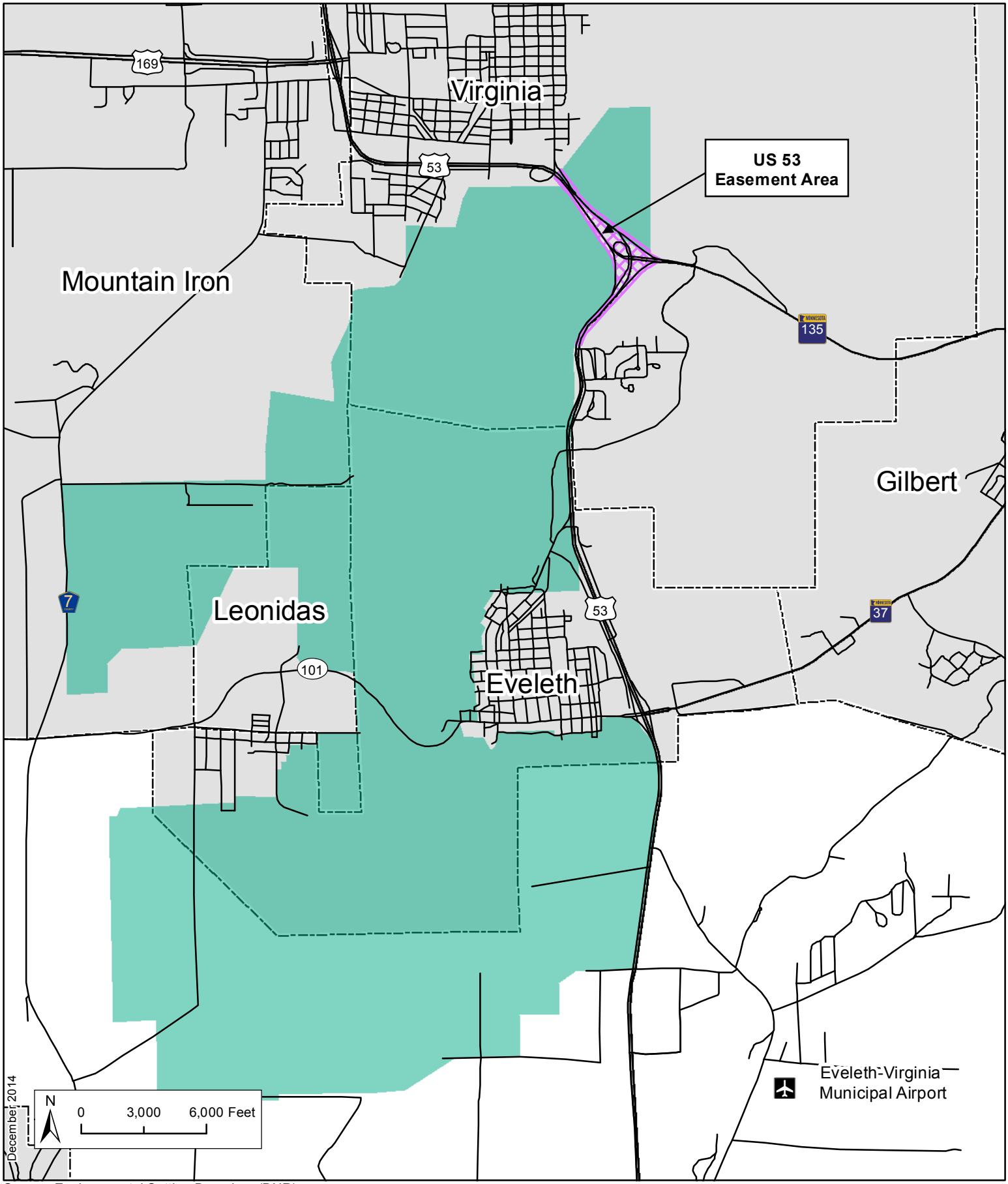
- **Consideration of existing and planned pedestrian/bicycle facilities**

  The Mesabi Trail, a non-motorized vehicle and pedestrian trail, currently provides a connection between the cities of Virginia and Gilbert within the project study area. Potential impacts to the trail and opportunities for maintaining a trail connection between these cities should be considered in conjunction with this project.

[5] The most recent traffic counts for US 53 and other trunk highways (US 169, MN 135, and MN 37) are from 2009. Traffic counts for most county and local roads were last completed in 2007. Traffic forecasts are based on a one percent annual growth rate. Figure 3.1-1 presents a baseline of 2009 for all segments, with county/local road volumes adjusted where necessary to conform to 2009 trunk highway traffic levels.

- **Provide a feasible transportation solution that is based on first avoiding and then minimizing adverse environmental impacts**

  In addition to the resource issues discussed above, this portion of northeastern Minnesota is characterized by northern mixed hardwood and conifer forests as well as conifer bogs and wetlands. Lakes and streams surround the project area in addition to abandoned mine pits that have naturally filled with groundwater. Virginia uses an adjacent mine pit as a reservoir for its drinking water. Within the context of an open-pit mining environment and nearby location of a public highway, an additional economic concern that must be considered is the potential business impact if the mine cannot meet air quality standards adjacent to the new road alignment. Mine operations near public air space may warrant closer review against National Ambient Air Quality Standards (NAAQS), which were established to protect public health and the environment.

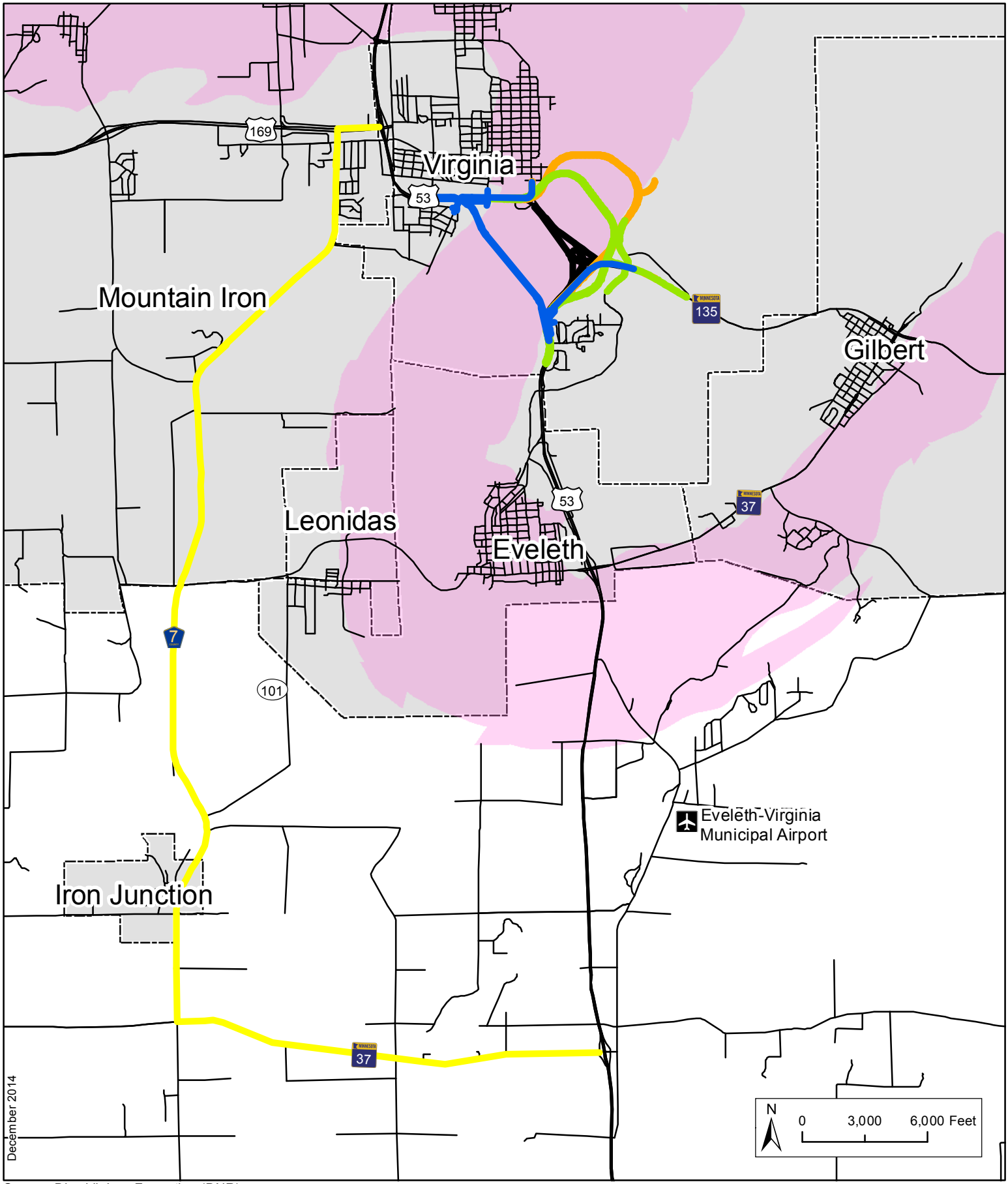


Source: Environmental Setting Boundary (DNR)

Legend

- Existing US 53 Easement Agreement Area
- UTAC Mine
- Municipalities

Figure 1.0-1
Project Location
US Highway 53 Virginia to Eveleth
Draft Environmental Impact Statement



Source: Biwabik Iron Formation (DNR)

Legend

- No Build Alternative
- Existing US 53 Alternative
- Alternative M-1
- Alternative E-1A
- Alternative E-2
- Biwabik Iron Formation
- Municipalities

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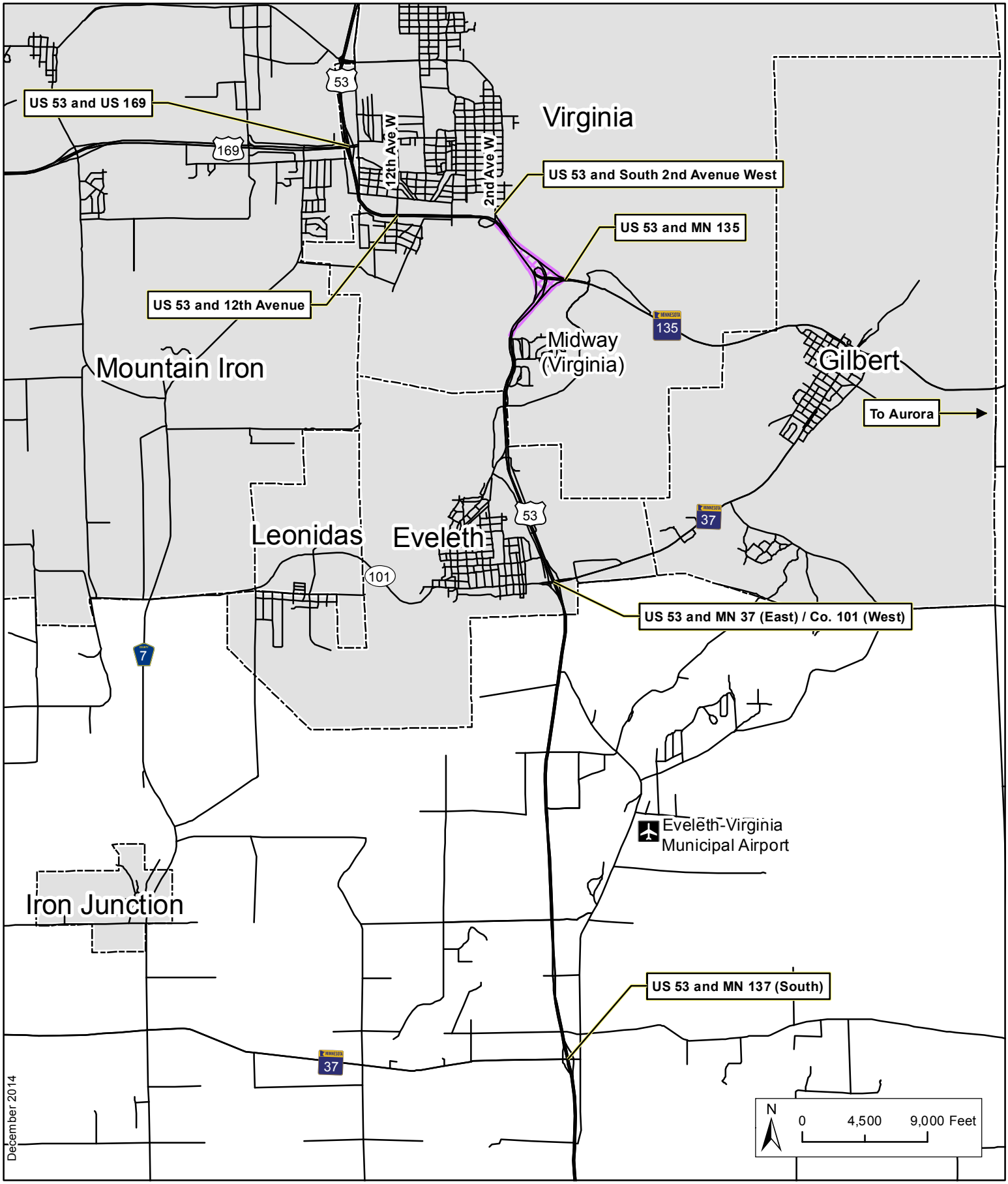
Figure 1.2-2
Virginia Horn of the Biwabik Iron Ore Formation
US Highway 53 Virginia to Eveleth
Draft Environmental Impact Statement



Legend

Existing US 53 Easement Agreement Area

Municipalities

Figure 1.3-1
Local Connections
US Highway 53 Virginia to Eveleth
Draft Environmental Impact Statement